

Jan. 12, 1926.

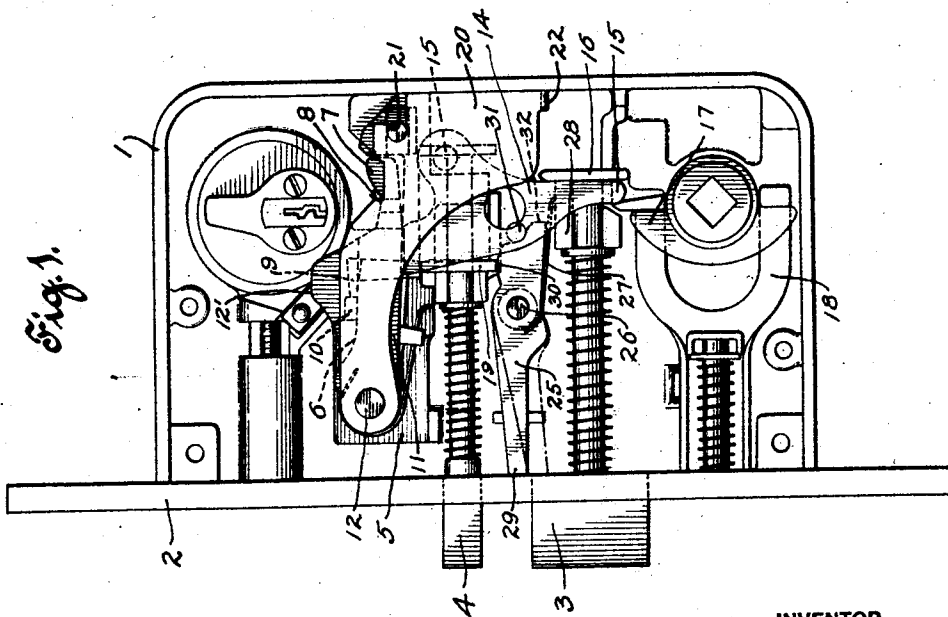
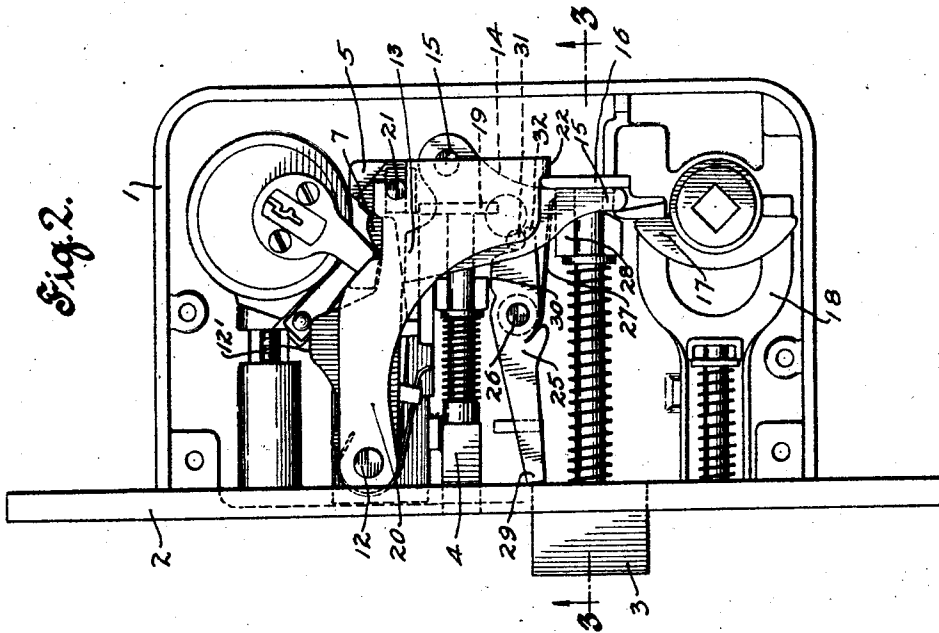
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N. B. HURD

LOCK

Filed July 13, 1925

2 Sheets—Sheet 1



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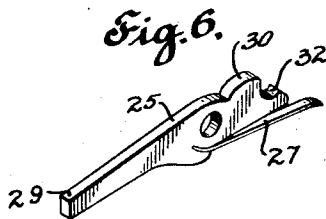
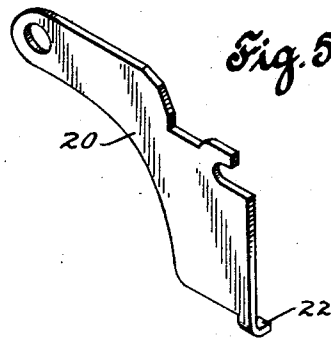
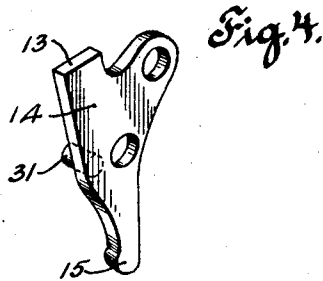
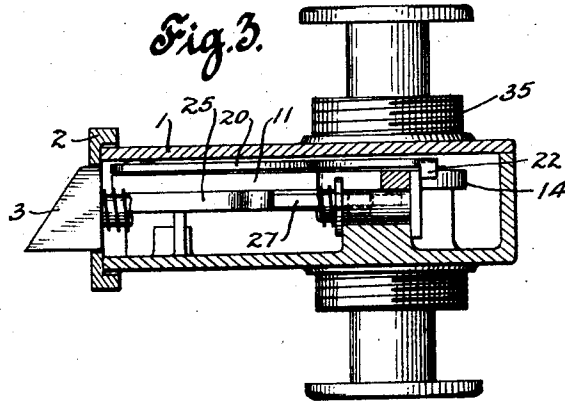
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LOCK

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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LOCK.

Application filed July 13, 1925. Serial No. 43,187.

To all whom it may concern:

Be it known that I, NORMAN B. HURD, a citizen of the United States of America, residing at New Britain, Connecticut, have invented a new and useful Lock, of which the following is a specification.

My invention relates to a lock, and more particularly to certain improvements on the lock disclosed in my co-pending application, Serial No. 16,300, filed March 18, 1925.

It is the principal object of my invention to provide a lock of the character indicated with improved dead-locking means for preventing the same from being picked.

It is another object of the invention to provide improved means for holding a locking member in the projected or locked position.

In the lock described in my aforesaid co-pending application, the parts are so arranged that a door, when locked from the inside, may not be unlocked from the outside with an ordinary key but may be unlocked by means of a special or master key. This is for the purpose of preventing a guest in a hotel, for example, when the lock is employed on a hotel door, from being annoyed by a maid entering the room, the maid being supplied only with an ordinary key and not with a master key.

The lock of my co-pending application contemplates the use of a protected strike plate for preventing the lock from being picked from the outside by inserting an instrument between the strike plate and the latch case on the door. It sometimes happens that even with a protected strike plate an instrument can be inserted or the strike plate broken away so as to permit the latch to be retracted.

One particular improvement in the present application includes a dead-locking means, which is interposed in rear of the latch bolt or some part connected thereto, and so arranged that when the door is closed the dead-locking dog lever prevents the latch bolt from being retracted, and yet may be moved out of the way by proper key or knob means when it is desired to open the door.

In the drawings which show, for illustrative purposes only, a preferred form of the invention—

Fig. 1 is a view of a lock embodying my invention a part of the latch case being re-

moved for illustrating the interior construction, the parts being in the positions occupied when the door is open and the parts in unlocked position.

Fig. 2 is a view similar to Fig. 1 but showing the parts in the positions occupied when the door is closed and locked;

Fig. 3 is a sectional view taken substantially in the plane of the line 3—3 of Fig. 2;

Figs. 4, 5 and 6 are isometric views of details.

In the drawings 1 indicates a lock case having a face plate 2 suitably apertured for permitting the passage of the latch bolt 3 and an auxiliary latch 4. 5 indicates a slide bolt in the casing and movable by key-controlled means from the unlocked position shown in Fig. 1 to the locked position shown in Fig. 2. The slide bolt carries a tumbler 6, having a projecting end 7 engaging in a notch 8 in the slide bolt. The tumbler is provided with a projection 9, which engages at one side or the other of a stump 10 on the lock case, so as to hold the tumbler and slide bolt in either of the positions shown in Figs. 1 and 2. A lever 11 may be pivotally mounted at 12 on the slide bolt, and the upper end of this lever is provided with an upstanding part 12', to be engaged by a rollback on a cylinder lock operable from the outside, as will be later described. The lower part of the lever 11 engages a part 13 on a second lever 14, pivoted on a suitable pin 15 in the lock case. At the lower end of the lever 14 is a finger 15, which stands behind a plate or abutment 16 on the rear end of the latch bolt 3 and serves to retract the same, as will be later described.

17 indicates a knob rollback, mounted in the casing and actuating a yoke 18, which latter in turn may engage the finger 15 on the lever 14 or the abutment 16 on the rear end of the latch bolt, whereby the latter may be retracted by means of a live knob on the inside of the door. It is preferred that the outside knob, if an outside knob be provided at all, be dead, that is, not connected to latch retracting mechanism, and thus the outside knob, if one be provided, serves merely as a convenient handle for moving the door.

The auxiliary latch 4, when the door is open, is spring pressed outwardly to the position indicated in Fig. 1 and when in

such position the rear end 19 of the auxiliary latch bolt engages beneath a projection on the tumbler 6, so that the latter may not be depressed and, since the tumbler can not be depressed, the slide bolt cannot be moved, since the slide bolt and tumbler are held in either of the positions shown in Figs. 1 and 2 by means of the stump 10 in the casing. When the auxiliary latch is in retracted position, as when the door is closed (Fig. 2), the tumbler may be depressed so as to disengage the same from the stump 10. That feature is more fully described and claimed in my aforesaid co-pending application.

When the parts are in the locked position, as shown in Fig. 2, the latch bolt 3 is held in that position by means of a part on or controlled by the slide bolt. In the form shown I position a plate 20 on the stud 12 and on a second stud 21, both studs being on the slide bolt. The lower end of the plate 20 is provided with a shoulder or abutment 22, which engages the rear of the plate or abutment 16 on the latch bolt, whereby the latter is held in projected position, as shown in Fig. 2, when the parts are in such locked position. When the parts are in unlocked position, as shown in Fig. 1 (whether the door be open or closed), the shoulder 22 stands out of the way of the abutment 16 and the latch bolt 3 could be retracted, except for my improved form of dead-locking means which will now be described.

The dead-locking latch dog in the preferred form shown comprises a lever 25 pivoted on a stud 26 in the latch case. A spring 27 may be secured to the latch dog 26 and may abut any suitable part of the casing, as the upstanding lug 28, so as to constantly urge the dead-locking latch to the position shown in Fig. 2, that is, to its operative dead-locking position, with the forward end standing behind the latch bolt 3 so as to prevent its retraction. The rear end of the lever 25 is provided with a cam surface 30, which is engageable by a part on the auxiliary latch 4 and, in the form shown, is engaged by the plate or abutment 19 thereon. When the door is open and the auxiliary latch projected as shown in Fig. 1, the abutment 19 rides up on the cam surface 30 and raises the dead-locking latch out of the way of the latch bolt 3, so that the door may be closed. When the door is closed and the auxiliary latch 4 thus held in retracted position by a part of the strike plate, the abutment 19 stands rearwardly beyond the end of the cam surface 30, and the spring 27 then forces the forward end 29 down into the dead-locking position shown in Fig. 2 behind the latch bolt.

In the form shown the lever 14, which

is pivoted on the stud 15 in the casing, is provided with means such as a pin 31 adapted to engage the finger 32 on the rear end of the dead-locking latch lever 25. Obviously, when the lever 14 is swung in a counter-clockwise direction as viewed in Figs. 1 and 2, the pin 31 depresses the finger 32 on the lever 25 and raises the forward end 29 thereof out of the path of the latch bolt 3.

The lever 11, when in the position shown in Fig. 1, may be engaged at the upstanding part 12' by a rollback carried by a rotatable plug of the cylinder lock 35 on the outside of the door. This operation is more clearly set forth in my said co-pending application. When the upstanding part 12' is depressed by means of the outside cylinder lock rollback, the forward end of the lever 11 depresses the lever 14 to cause the same to swing in a counterclockwise direction as viewed in Figs. 1 and 2. This counterclockwise swing raises the forward end 29 of the dead-locking latch, as previously described.

When the door is closed but the parts in unlocked position, that is, with the parts substantially as shown in Fig. 1, except with the auxiliary latch retracted by the strike plate, the inside or live knob may be rotated to cause the lever 14 to swing in a counterclockwise direction and the lever 14, whether swung by key-controlled means from the outside of the door or by the inner live knob, serves to raise the forward end 29 of the dead-locking latch so as to permit the latch bolt to be retracted. Since that part of the dead-locking latch in rear of the pivot 26 is relatively short, a comparatively small movement of said rear end serves to raise the forward end 29 out of the way before the latch bolt reaches the same.

The operation will now be understood from the following short description:

With the door closed a key may be inserted from the outside of the door (Fig. 3), and the rollback of the outside cylinder depresses the lever 11 which, in turn, swings the lever 14, and the finger 15 thereon retracts the latch bolt 3. Before the latch bolt has started to move materially, the pin 31 on the lever 14 swings the forward end 29 of the dead-locking latch up out of the way, and the latch bolt 3 may then be retracted and the door opened. When the person has entered the room the door may be closed. As soon as the door is completely closed the latch bolt 3 moves to the outward or projected position and into the keeper aperture in the strike plate. The auxiliary latch 4, when the door is closed, is, of course, held in retracted position by the strike plate, and since the abutment 19 on the auxiliary latch is out of engagement with the cam surface 30 on the dead-locking

latch and the pin 31 is in such position that it does not elevate the forward end 29 of the dead-locking latch, the latter will move downwardly to the position shown in Fig. 2, where the forward end is directly behind the latch bolt 3, and therefore the latter cannot be forced inwardly by a person attempting to pick the lock.

The door may then be locked by the inside key-controlled rollback as shown in Figs. 1 and 2, the rollback serving first to depress the projection 7 on the tumbler to disengage the same from the stump 10, and then move the slide bolt to the position shown in Fig. 2, in which position the shoulder 22 engages behind the plate 16 on the latch bolt and holds the same in such locked position.

When the parts are in this locked position the dead-locking latch is merely an additional or safety device, since the latch bolt 3 is securely held by the abutment or shoulder 22. It is only when the door has been closed, but not locked from the inside, that the dead-locking latch 25 is the sole means for preventing the lock from being picked, and it might here be said that when a person leaves the room the door is ordinarily slammed and cannot again be entered except by means of a key or by picking the lock. It is therefore important to provide a dead-locking means for holding the latch bolt in the locked position when the door is closed but no one is in the room to lock the same from the inside. As is more clearly set forth in my co-pending application, when the parts are in locked position as shown in Fig. 2 the part 12' on the lever 11 is out of the path of the rollbacks controlled by the cylinder locks and therefore the door cannot be entered from the outside except by a special key which permits the parts to be again positioned as in Fig. 1.

While the invention has been described in some detail I do not wish to be limited to the form or specific arrangement of the parts shown, since changes may be made within the scope of the invention as defined in the appended claims.

I claim—

1. In a lock, a lock case, a slide bolt therein, a latch bolt in the case, a key-con-

trolled member, means carried by said slide bolt and operable by said key-controlled member, an operating member to be engaged by said means and to be operated thereby for retracting the latch bolt, a dead-locking latch dog for dead-locking the latch bolt and means carried by said operating member for retracting the dead-locking latch dog and permitting the latch bolt to be retracted.

2. In a lock, a lock case, a latch bolt therein, a slide bolt in said case, key-controlled means for moving said slide bolt, a lever on said slide bolt, a second lever in said case and operable by said first mentioned lever, said second lever engaging said latch bolt and serving to retract the same when said first mentioned lever is actuated by key-controlled means, dead-locking means for said latch bolt and means carried by one of said levers for moving the dead-locking means to an out of the way position before the latch bolt is retracted.

3. In a lock, a lock case, a slide bolt therein, a tumbler carried by said slide bolt, a stump in said case to be engaged by said tumbler for locking the latter and said slide bolt in projected and in retracted positions, a lever on said slide bolt, a second lever in said case and engageable by said first mentioned lever, said second lever engaging said latch bolt, key-controlled means for actuating said first lever for acting upon said second mentioned lever for retracting said latch bolt, knob controlled means for retracting said latch bolt, a dead-locking latch for dead-locking said latch bolt, said dead-locking latch bolt being operable by said key-controlled means and by said knob controlled means for moving said dead-locking latch to an out of the way position before said latch bolt is retracted.

4. In a lock, a lock case, a latch bolt therein, a slide bolt in said case and movable to a locked and unlocked position, key-controlled means for moving said slide bolt, and a removable member carried by said slide bolt and engageable with a part of said latch bolt for holding the same in locked position when said slide bolt is in locked position.

NORMAN B. HURD.